

## AFM Statistics Review

Name

key

The following data represents the amount of snowfall (in inches received at Mammoth Mountain in the Sierra Mountains from the 1996-1997 ski season to the 2005-2006 ski season.

399	542	347	381	400
289	358	439	602	661

- a. Find the mean.  $441.8$  inches
- b. Would you use sample or population standard deviation?
- c. Find the standard deviation by HAND.

$$S_x = 120.37 \text{ inches}$$

2. The following test grades are for the only Pre-calculus course in the school.

6	1	7	8					
7	2	4	5	7	8	8	9	9
8	0	2	3	4	5	5	6	8
9	0	0	1	2	3	3		
10	0							

- a. Find the mean.  $82.19$
- b. Would you use sample or population standard deviation?

Find the standard deviation using your **calculator**.

$$S_x = 8.928$$

Determine if qualitative, quantitative discrete, or quantitative continuous.

3. Brand name of a pair of running shoes QL
4. Number of siblings QD
5. Weight in carats of an uncut diamond QC

Determine whether each study depicts an observational study, experimental study, or simulation.

6. A parent group randomly examines 25 randomly selected PG-13 movies and 25 randomly selected PG movies and records the number of curse words that occur in each. They then compare the number of curse words between the two movie ratings. OS
7. A sample of 504 patients in early stages of Alzheimer's disease is divided into two groups. One group receives an experimental drug; the other group receives a placebo. The advance of the disease in the patients from the two groups is tracked at 1-month intervals over the next year. ES
8. To check to see if a pair of dice is loaded, you roll them 100 times and record your results. Sim

Determine the type of sampling used (simple random, stratified, cluster, or convenience).

9. On Election Day, a pollster from Fox News positions herself outside a polling place near her home. She then asks the first 50 voters leaving the facility to complete a survey.

convenience

10. An internet service provider randomly selects 15 residential blocks from a large city. It then surveys every household in these 15 blocks to determine the number that would use a high-speed internet service if it were made available.

cluster

11. Thirty-five sophomores, 22 juniors, and 35 seniors are randomly selected to participate in a study from 574 sophomores, 462 juniors, and 532 seniors at a certain high school.

Stratified

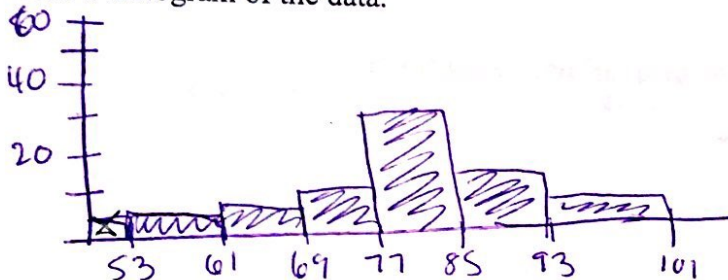
12. A quality-control engineer wants to be sure that bolts coming off an assembly line are within prescribed tolerances. The quality-control engineer randomly picks bolts off of the assembly line to test.

SRS

13. The table shows the resulting scores of the final exam in AFM for 90 Students at Middle Creek High School.

Scores	53-61	61-69	69-77	77-85	85-93	93-101
Frequency	3	7	11	38	19	12

- Find the class limits for the row with frequency 19.  $85-93$
- Find the class interval.  $8$
- Make a histogram of the data.



14. The data shows the average temperatures in January for several cities in the mid-South

49.1 50.8 42.9 44 44.2 51.4 45.7 39.9 50.8 46.7 52.4 50.4

- Find the mean, median and the mode by **HAND**.

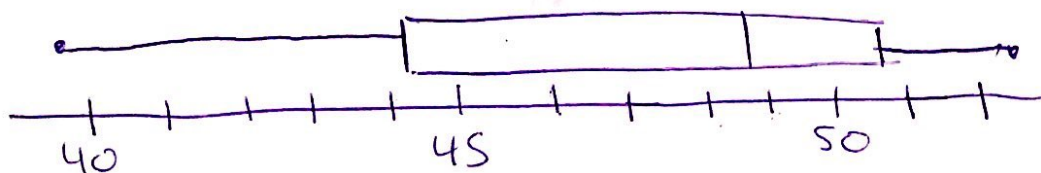
$$\bar{x} = 47.36 \quad \text{med} = 47.9 \quad \text{mode} = 50.8$$

- Find the values of  $Q_1$ ,  $Q_2$ ,  $Q_3$ , range, interquartile range and the outliers by **HAND**.

$$Q_1 = 44.1 \quad Q_3 = 50.8 \quad IQR = 6.7$$

$$Q_2 \text{ (median)} = 47.9 \quad \text{range} = 12.5 \quad \text{outliers?} = \text{none}$$

- Sketch a Box-and-Whisker plot.



15. A family goes grocery shopping every week. In a month the cost of the groceries are :

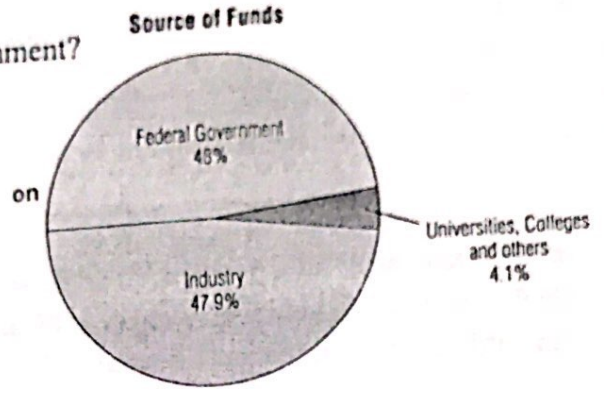
\$72.42 \$91.5 \$58.99 \$69.02

- a. Find the mean.  $\$72.98$
- b. Find the standard deviation by HAND. (Which are you going to use: population or sample?)

$S_x = 13.598$

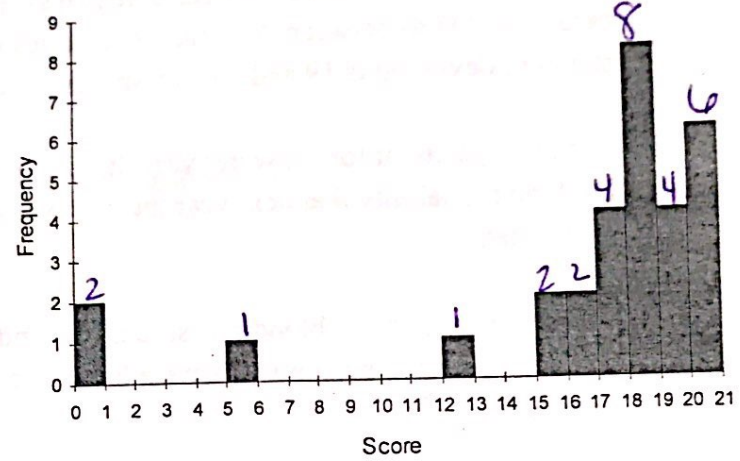
16. Refer to the circle graph which shows who paid for the research and development done in the U. S. in 1988. If the total amount of research funded was about \$126,115 million:

- a. About how much was funded by the Federal government?  
 $\$60535.2$  million
- b. About how much was funded by industry?  
 $\$60409.085$  million



17. Use the histogram to answer the following:

- a. Describe the shape of the distribution.  
*Skewed Left*
- b. Which is higher the mean or the median?
- c. About what percentage of the scores are greater than or equal to 15 and less than 18?



$\frac{8}{30} = 26.67\%$

18. Describe the shape of the distribution of each graph.

